REMARKS

Claims 1-17 and 20-27 are pending in this application. By this Amendment, Fig. 7 is corrected pursuant to the attached replacement drawing sheet to replace the term "edge" at step S860 with --surface--, claims 18 and 19 are cancelled without prejudice to or disclaimer of the subject matter contained therein, and the specification and claims 1, 4-7, 9-17 and 20-22 are amended. Claims 1 and 20-22 are amended to recite features supported in the specification at paragraphs **[0108]** – **[0132]**. No new matter is added by any of these amendments.

Reconsideration of the application is respectfully requested.

I. The Claims Satisfy the Requirements under 35 U.S.C. §112, first paragraph

The Office Action rejects claims 6, 7, 20 and 21 under 35 U.S.C. §112, first paragraph, based on lack of enablement. This rejection is respectfully traversed.

Subject matter to which claim 6 pertains is supported in the specification, for example, at paragraphs **[0108]** – **[0110]** and **[0129]** – **[0132]**. Specifically, paragraph **[0110]** describes that "... edge-artifact buffer zones may be alternatively described and determined as zones generally surrounding each edge included in the current composite edge map. ... [E]ach zone has an outer zone-boundary, which is generally located at a prescribed setback distance from the edge pixels that the zone surrounds." Also, paragraph **[0109]** explains that "surface-pixel regions may 'grow' into the edge-artifact buffer zone. However, a surface-pixel region is not allowed to start from a seed pixel in the edge-artifact buffer zone." Thus, the specification explains that a seed pixel (in the second set of pixels that correspond to surfaces in the composite image, within this context) is not permitted to begin in the edge-artifact buffer zone, and therefore lies at least a prescribed setback distance away from each of each edge pixel (in the first set of pixels), as recited in claim 6.

Further, paragraph **[0129]** explains that "the meta-pixel spatial location having the maximum surface-focus indicator value... is set as the primary seed for growing a surface region having a limited focal plane range. Next, the region is grown around the primary seed by including in the region all 4-connected neighbors of the primary seed which have a source image index which is within a range of plus or minus two increments of the source image index of the primary seed. Subsequently, each neighbor added to the region... becomes an additional secondary seed. This is repeated until the region can grow no further." Also, paragraph **[0132]** provides that "[t]hroughout the recursive region growing algorithm, in various exemplary embodiments, the primary seeds are not generally selected corresponding to spatial locations in any edge-artifact buffer zone..." In particular, the outlined region growing method described can subsequently determine at least one pixel in the second set of pixels, *i.e.*, surface pixels, of the composite image that lies at a distance less than the prescribed set-back distance because surface-pixels may "grow" into the edge-artifact buffer zone.

Moreover, as indicated above, in one embodiment, surface pixels "grown" from the primary seed are determined such that they have a source image index that is within a range of plus-or-minus two increments of the source image index of the primary seed. Thus, the source image index in this case is the "characteristic associated with at least one of the at least one pixel in the second set of pixels of the composite image", as recited in claim 6. Thus, Applicant respectfully asserts that claim 6 is supported by written description in the specification. However, the foregoing embodiments described are illustrative only, and do not limit the claims.

Similarly, subject matter to which claim 7 pertains is supported in the specification, for example, at paragraph **[0134]**, particularly mentioning the terms a source image, source image index and source image focal plane. With respect to the recording medium for claim

20 and an encoded carrier wave for claim 21, the specification provides support, for example, at paragraphs [**0151**] and [**0152**]. Specifically, paragraph [**0151**] provides "the memory 140... can be implemented using any one or more [examples, and] the control system portion 120 can be implemented as software... executing on a programmed general purpose computer..." Claim 20 corresponds to a Beauregard form. See *In re Beauregard*, 53 F.3d 1583, 35 USPQ2d 1383 (Fed Cir 1995). With respect to claim 21, Applicant respectfully asserts that a carrier wave encoded to transmit a control program to a device for executing the control program, as recited in claim 21, may comprise "software... executing on a programmed general purpose computer", as described at paragraph [**0152**]. Further, such computer data signals are provided as set forth in the *Training Manual* for Examiners. See *Examination Guidelines for Computer Related Inventions* under claim 13 in the Automated Manufacturing Plant example. Thus, claims 7, 20 and 21 are supported by the written description in the specification. Withdrawal of the rejection under 35 U.S.C. §112, first paragraph is respectfully requested.

II. <u>The Claims Satisfy the Requirements under 35 U.S.C. §112, second paragraph</u>

The Office Action rejects claims 6 and 7 under 35 U.S.C. §112, second paragraph, as being indefinite. This rejection is respectfully traversed.

Applicant asserts that, as explained in supporting paragraph [**0110**], the setback distance represents, for example, a distance from the edge pixels and the zone boundary. However, such example is not limiting with respect to the claims. Accordingly, Applicant submits that claims 6 and 7 particularly point out and distinctly claim the subject matter that Applicant regards as the invention, especially when the claims are interpreted in light of the specification. Withdrawal of the rejection under 35 U.S.C. §112, second paragraph is respectfully requested.

III. Claims 1-17 and 20-27 Define Patentable Subject Matter

The Office Action rejects claims 1-5, 8-20 and 22-27 under 35 U.S.C. §102(e) over U.S. Patent No. 6,445,415 to Olsson. The Office Action further rejects claims 6 and 7 under 35 U.S.C. §103(a) over Olsson in view of U.S. Patent No. 6,064,767 to Muir *et al.* (hereinafter "Muir"); and claim 21 under 35 U.S.C. §103(a) over Olsson in view of U.S. Patent No. 6,678,064 to Bruce. These rejections are moot with respect to cancelled claims 18 and 19, and are respectfully traversed with respect to the remaining claims.

Olsson does not teach or suggest a method for constructing a composite image of at least a portion of an object based on a plurality of source images, each of the plurality of source images including at least that portion of the object, each of the plurality of source images corresponding to a different focal plane with respect to the object, the method including determining a first set of pixels of the composite image corresponding to at least one of edges and boundaries in the composite image, wherein the determining includes performing a first type of analysis of the plurality of source images at at least some of a plurality of spatial locations in the source images, and determining a second set of pixels of the composite image corresponding to surfaces in the composite image, wherein the determining includes performing a second type of analysis of the plurality of source images at at least some of the plurality of spatial locations in the source images, and at least one of determining the first set of pixels and determining the second set of pixels includes at least one operation that suppresses at least some pixels corresponding to at least partially out-of-focus edges or boundaries in the source images from being included in the composite image, as recited in claim 1, and similarly recited for claims 20 and 21.

Olsson discloses a generalized method to increase photographic depth of focus. In particular, Olsson teaches correction of sharpness using optical rules to reduce the focal aperture while maintaining adequate light level (col. 8, lines 1-50 of Olsson). Further, Olsson

teaches improving sharpness of composite images using selective magnification (col. 9, lines 43-49 of Olsson).

There is no teaching or suggestion in Olsson for suppressing image artifacts which correspond to out-of-focus edges or boundaries included in the plurality of source images, as recited in claim 1. Olsson teaches a method for strong defocusing in consecutive images that requires operator intervention to find focal planes which can be positioned along steep mountains, or supply additional photographs. Olsson emphasizes for manual edge identification applied by the user, rather than an automatic technique (col. 5, lines 50-61 of Olsson).

Olsson provides no detail regarding the automatic selection of surface pixels in the vicinity of edges or between edges, other than that they should be in focus. Using Olsson, one of ordinary skill, with conventional surface focus measures, would be inclined to employ a partially blurred edge in favor of genuine surface features that may have lower contrast, for example. The features of claim 1 provide for suppressing image artifacts that correspond to out-of-focus edges to facilitate growing a region toward the edge for a more appropriate image boundary.

A claim must be literally disclosed for a proper rejection under §102. This requirement is satisfied "only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference" (MPEP §2131). As discussed above, Applicant submits that the Office Action fails to satisfy this requirement with Olsson.

Muir and Bruce do not compensate for the deficiencies of Olsson outlined above for claim 1. Nor does Muir teach, disclose or suggest the additional features recited in claims 6 and 7. Moreover, Bruce fails to teach, disclose or suggest the features recited in claim 21.

Muir discloses a process for automatic language identification using stroke-geometry analysis. In particular, Muir teaches segmenting an image into constituent strokes around a central "seed" pixel (col. 5, lines 59-66 and Fig. 3 of Muir).

Moreover, Bruce discloses a method for viewing a print document. In particular, Bruce teaches queuing and menu control features (col. 9, lines 25-59 and Fig. 3 of Bruce).

Further, there is no motivation to combine features related to stroke-geometry analysis taught by Muir with the increasing focal depth taught by Olsson, nor has the Office Action established sufficient motivation for a *prima facie* case of obviousness. Similarly, there is no motivation to combine features related to the print queuing as taught by Bruce with the increasing focal depth as taught by Olsson, nor has the Office Action established sufficient motivation for a *prima facie* case of obviousness.

A *prima facie* case of obviousness for a §103 rejection requires satisfaction of three basic criteria: there must be some suggestion or motivation either in the references or knowledge generally available to modify the references or combine reference teachings, a reasonable expectation of success, and the references must teach or suggest all the claim limitations (MPEP §706.02(j)). Applicant submits that the Office Action fails to satisfy these requirements with Olsson and Muir, or alternatively, with Olsson and Bruce.

For at least these reasons, Applicant respectfully asserts that the independent claims are patentable over the applied references. The dependent claims are likewise patentable over the applied references for at least the reasons discussed, as well as for the additional features they recite. Thus, Applicant respectfully requests that the rejections under 35 U.S.C. §§102 and 103 be withdrawn.

IV. Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

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JAO:GWT/gwt

Attachment:
Petition for Extension of Time

Date: November 22, 2004

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